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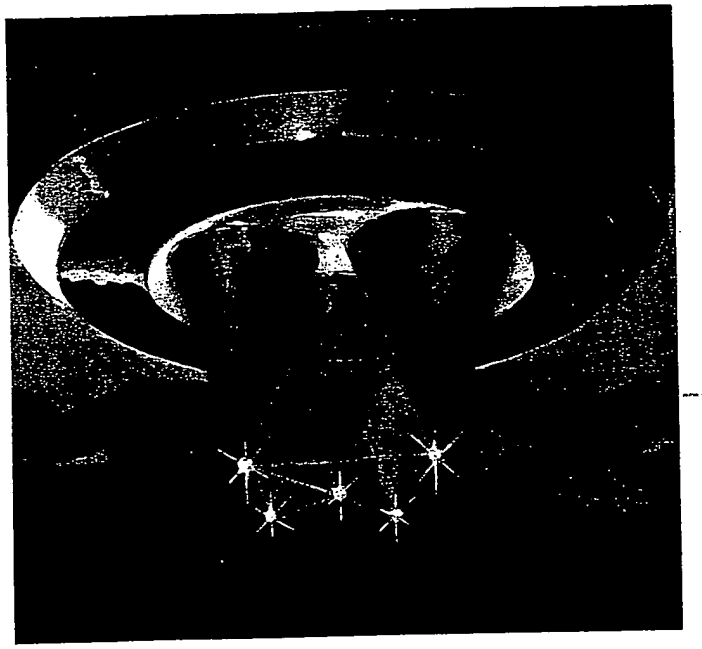
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M 2 1 8

Enhancements for Productivity and Simplified Maintenance



Link Sprint™

Sun 3 Workstation

Diode-Pumped Nd:YLF Laser

Three New Options for the M218 Laser Processing System

TERADYNE

[redacted]

New Enhancements for the World's Most Productive Laser Processing System

Introducing...

Link Sprint
Sun 3 Workstation Compatibility
Diode-Pumped Nd:YLF Laser

Now you can expect even more from the world's most productive laser processing system. To help reduce your operating costs and increase your revenue per hour for processing memories and ASICs, Teradyne has introduced three new options for the M218 Laser Processing System.

The new enhancements, combined with the M218's no-wear galvanometer beam positioning, make it the most production worthy system for repairing the latest generation of megabit memories and for laser programming of high-density ASICs.

Each enhancement is a major improvement that boosts the M218's speed and capacity dramatically.

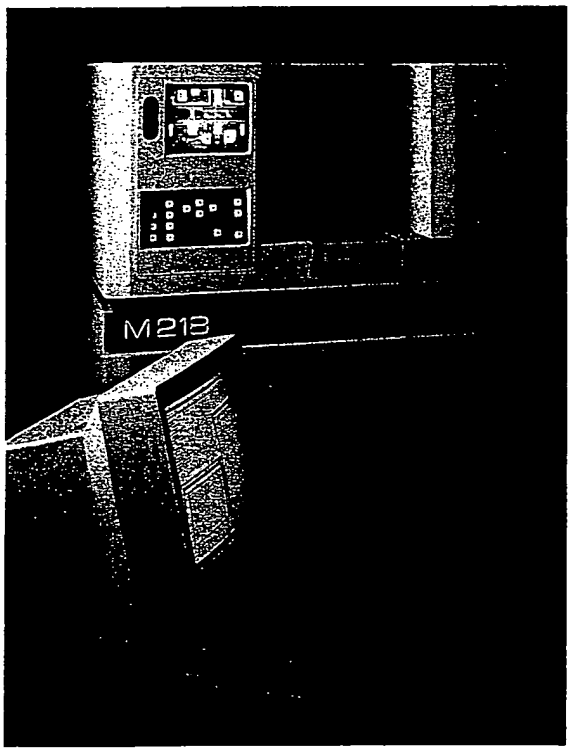
- *Link Sprint software* improves throughput by 18% or more for memories and up to 400% for laser programming of ASICs using a cut-on-the-fly technique.

- *The Sun 3 workstation* or the *Sun 3 upgrade package* for installed systems, typically improves throughput an additional 20% by increasing computation speed.

- *The diode-pumped Nd:YLF laser* eliminates laser lamp changes, cuts systems power consumption 80%, eliminates water cooling, and reduces system floor space 16%.

Link Sprint: Lightning Fast Link Cutting with Full Rated Accuracy

Link Sprint software increases the speed of link cutting from 100 links per second to 2500 links per second. It does this using a cut-on-the-fly technique which enables the laser beam to move at a constant velocity as it cuts links. Even at full cutting speed, the M218 maintains a positioning accuracy of better than 1 micron to ensure high device yield.



The Sun 3 workstation enhances the productivity of the world's most productive laser processing system by decreasing the computation time for every step in the repair process including focus, alignment, and link cutting.

By eliminating the settling time between links, Link Sprint improves your overall throughput – including wafer handling, focus, alignment, and link cutting – by at least 18% for memories which have fewer than 30 cut links to repair per device.

For manufacturers of laser programmable ASICs and other devices which include a large number of links to cut, Link Sprint improves overall throughput 400% or more, thereby minimizing your investment in capital equipment and reducing turnaround time for your customers.

The consistent, accurate performance of Link Sprint is possible because the M218 uses galvanometer beam positioning. Even when cutting at Link Sprint's high speeds of up to 2500 links per second, the galvanometers maintain their extraordinary repeatability so accurate positioning is achieved. Because the galvanometers have no wear, Link Sprint will cut millions of links with no change in performance.

Sun 3 Workstation: Improved Computation Speed Means More Devices Per Hour

The Sun 3 workstation has a faster cycle time and includes a hardware floating point processor. Combined, these two features of the Sun 3 significantly decrease the computation time for every step in the repair process: focus, alignment, and link cutting. Throughput improvements of 20% are typical for memory repair based on an increased computation speed for the Sun 3 of at least 40%. All M218s shipped starting April 1989 include the Sun 3 workstation.

An upgrade package to replace the Sun 2 in installed systems is also available. With the upgrade, job plans written for M218s with Sun 2 workstations will run directly on systems with Sun 3 workstations.

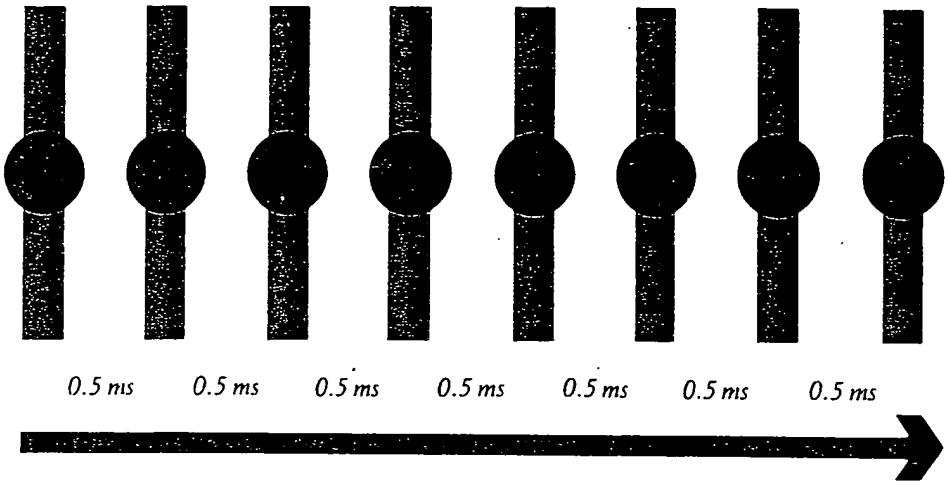
Diode-Pumped Nd:YLF Laser: No Lamps, No Water, and Far Less Electrical Power

The diode-pumped neodymium-doped yttrium lithium fluoride (Nd:YLF) laser has a long lasting diode array that replaces the arc lamp used in conventional Nd:YAG lasers. The optical power from the array is at the precise frequency to efficiently charge the Nd:YLF laser crystal with optical energy. Compared with an arc lamp, the output power of the array can be far lower for the same laser energy at the work surface. By using a high efficiency array instead of an arc lamp, there are no lamp changes, no cooling water, 80% less system electrical power, and a 16% smaller system footprint.

The diode-pumped Nd:YLF laser maintains the same high pulse-to-pulse stability specification of less than 1.5% RMS variation as the Nd:YAG laser.

The diode-pumped Nd:YLF laser is available as an option at the time of system order. Upgrades from an arc lamp to diode-pumped laser also are available for installed M218 systems.

M218 Link Sprint



The first link in a row is cut when the laser beam reaches the correct velocity, and subsequent links are cut as the beam moves in a straight line across the row. The beam maintains correct intensity and position even when links to be cut are unevenly spaced in the row.

Without Link Sprint the M218 cuts links in any position in the field by stopping beam motion before link cutting. In this case there is an additional 8 ms of settling time per link.

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05764-1088